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T41 Series Developer Specifications

Note: Additional developer information such as CAD drawings and regulatory documentation are available at: http://mcspartners.trimble.com.

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Trimble Mobile Computing Solutions Division, 4100 SW Research Way, Corvallis, OR 97333-1066, USA

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Base System Hardware Specifications

- Processor: Texas Instruments OMAP3 DM3730 Sitara™ ARM® Cortex™-A8
- Processor speed: 800 MHz (non-phone models) / 1.0 GHz (phone models)
- Memory: 256 MB (non-phone models) / 512 MB (phone models) Mobile DDR RAM
- Built in Storage: 8 GB (non-phone models) / 16 GB (phone models) Onboard nonvolatile Pure NAND Flash

Physical Characteristics

- Size: 6.1 x 3.2 x 0.9 inches (15.5 x 8.2 x 2.5 cm)
- Weight: 13.5 ounces (0.4 kg)
- Colors:
  - Black with Yellow (IP65)
  - Black with Grey (IP68)

Materials

- Keyboard / Buttons:
  - Button Caps: Polycarbonate;
  - Button actuator/support: Kraiburg Thermolast K TPE (Thermoplastic Elastomer)
- Display surface: Corning Gorilla® Glass 1
- Case / Body:
  - Substrate: Sabic Lexan EXL9330 Polycarbonate/Siloxane alloy with improved chemical resistance over standard PC
  - Over-molding: Kraiburg Thermolast K TPE (Thermoplastic Elastomer).
- Pantone color:
  - Front Case: Pantone 116 C (yellow), Pantone 429 (gray)
  - Back Case: Pantone 432C (gray)
  - Front Buttons: Pantone 432C
  - Side Buttons: Pantone 424C
  - Power Key: 341C
- Screws: Stainless Steel with Black Passivation

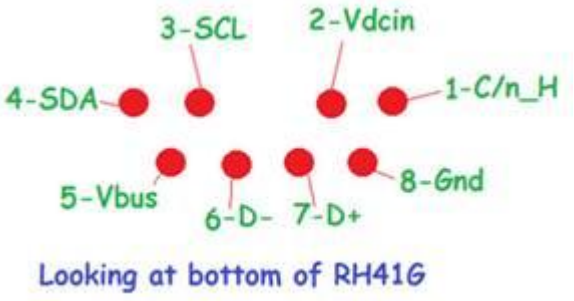
Audio

- Audio Output
  - Speaker
    - Impedance: 8 ohm
    - Power: 0.8 W
    - Mono
    - 1 kHz
      - 100 cm >= 74 dB
    - Supports speakerphone routing
      - Speakerphone is provided by MS standard notification icons.
  - Receiver
    - Impedance: 32 ohm
    - Power: 10 mW
  - External Audio Jack
    - 3.5 mm 4-contact plug
    - Stereo output with mic input
    - Pin define
      - TIP: LEFT
      - RING1: RIGHT
      - RING2: GND
      - SLEEVE: MIC
    - Supports call pick-up function for headphones equipped after pressing and releasing the switch in 200ms~500ms.
    - Supports call hang-up function for headphones equipped after pressing and releasing the switch in 800ms~3000ms.
    - Supports detection and routing of audio through a wired headset (4-conductor stereo headset with mic), including voice calls
    - Supports detection and routing of audio through a Bluetooth headset, including voice calls
    - Provides UI notifications to indicate current routing path:
      - Bluetooth headset is provided by MS standard notification icons.
      - Bluetooth stereo headset is provided by MS standard notification icons.
- Audio Input
  - Internal Microphone
    - Two MIC Input
    - Top
      - Knowles MEMS MIC
    - Bottom
      - Knowles MEMS MIC
  - Able to record human speech at normal speaking volume for 30 cm in speaker mode

I/O Port:

- USB 2.0 interface (Not standard OTG interface, it is USB Host and Client combined interface)
    - Connector: Custom 8 pin connector used for charging and data transfer cables
    - Interface: from AP module TPS65950 OTG interface
    - Host function
        - 5V Output: provides 200mA / 5V output
    - Client function
        - 5V Input::
            - Cable only: 500mA / 5V input (VBUS)
            - Adaptor only: 1.5A / 5V input (VBUS)
            - Extended Battery Pack only: 1.5A / 5.4V input (VDCIN)
            - Extended Battery Pack with Cable: 500mA / 5V input (VBUS)
            - Extended Battery Pack with Adaptor: 1.5A / 5V input (VBUS)
    - Certificate: USBIF 2.0 Client certificate (based on custom cable)
    - 5 x life of USB
    - Fully Water and Dust Sealed
    - USB 2.0 Host via optional conversion cable
    - Serial (RS-232) via optional conversion cable; all standard 9 pin signals implemented; no power available

- Custom 8 pin connector pin outs



- How much power can be sourced from the custom connector?
    - It supplies the standard 5V / 500mA that is allowed in USB.

- Does Trimble support 3rd party development of accessories which attach? (is there a development kit/platform)?
    - We can help answer any specific questions about T41 that you may have, but there is no development kit/platform available.

Removable Storage

- Removable Mass Storage: microSD interface
    - Supports 2GB Micro-SD and up to 32GB Micro-SDHC
    - Clock Rate = 52MHz
    - Recommended name brands such as Sandisk and Transcend
    - Card can be inserted and removed without rebooting the device

Power

- Technology: Rechargeable Lithium-ion Polymer Battery (not user replaceable)
- Battery Capacity: 3300 mAh, 3.7 V (@0.2C), 12.2 Wh
- Average Charge Time: 3 hours (100%), 2 hours (86%)
- Shelf Life: at least 80% capacity / use time left after 2 years of active use (Total of 500 cycles - based on heavy usage of 250 recharge cycles per year).
- Battery Life while unit is on:
    - Backlight off, all radios off, room temperature: 15.5 hours
    - Backlight default (50%), all radios off, room temperature: 11.5 hours
    - In-call, all radios off except phone, room temperature: 8 hours
    - Video Looping, all radios off, room temperature: 10 hours
    - Video Looping, all radios off, -30 C: 5 hours 45 minutes
    - Video Looping, all radios off, +60 C: 6 hours, 50 minutes
- Battery Life while unit is in Standby / Suspend:
    - Radios off: approximately 330 hours or 13.75 days, based on suspend current of approximately 10mA and battery capacity of 3300 mAh
    - WWAN radio on: approximately 250 hours or 10.4 days based on suspend current of approximately 13.2 mA and battery capacity of 3300 mAh
- Battery Life with unit in Shutdown:
    - Shutdown: approximately 1100 hours or 45.8 days
    - A full battery is no more than 50% discharged after 30 days with the device in Shutdown
- Cut off mode (for storing on the shelf or prior to shipping):
    - Current under 20uA – more than 18 years…but self discharge within the battery (because there is a gas guage IC inside the battery pack that also drains the battery) will mean you won't get 18 years
- Note: The battery life will decrease by turning the backlight up to full brightness, turning on/using Wi-Fi, turning on/using Bluetooth, using the compass, using the phone, running a CPU intensive program, using the camera/video, using the flashlight, using GPS, using in temperatures hotter or colder than room temperature, and/or attaching a peripheral device that consumes power.

Notification LED

- One Tri-Color LED (Red / Amber / Green), will still work when CPU is suspended
- Interface: I2C
- LED behaviors:
    - Red
        - Solid Red – Low Battery
        - Blinking Red – Low Battery and OS Notification
    - Amber
        - Solid Amber – Charging
        - Blinking Amber – Charging and OS Notification
    - Green
        - Solid Green – Fully charged (this should only occur when the device is connected to a charger).

        - Blinking Green – Fully charged and OS Notification (this should only occur when the device is connected to a charger).
    - Blink rate: 5 seconds
    - ON time(Solid): 100ms

Hardware Buttons

- 8 Buttons:
    - Front:
        - 4 Buttons under the display:
            - Start Menu (programmable)
            - Left Key (programmable)
            - Right Key (programmable)
            - OK (programmable)
    - Left:
        - 3 Buttons:
            - Volume Up
            - Volume Down
            - Enter/Action Button (programmable)
    - Right:
        - 1 Button:
            - Power Button
                - Hold power button for 3 seconds and a menu pops up from which one of the choices is a soft (graceful) reset.
                - Hold power button for ~8 or 10 seconds and the unit will go through an ungraceful, power-up reset whether SW is running properly or not.

Touch Panel / Screen

- Multi-Touch user interface with projected-capacitive type touch panel with AR coating
    - Capacitive, Conductive & Passive stylus compatibility with Cypress Semiconductor Corp. TrueTouch touchscreen controller Technology
        - Cypress Touch screen Controller CY8CTMA340
        - “Resistive Stylus Replacement” (RSR) solution that matches the size and performance of resistive stylus implementations while providing the additional benefits of the capacitive touch solution
        - dynamically switch between self-capacitive and mutual-capacitive sensing methods
        - The new families provides all the traditional benefits of Cypress’s TrueTouch technology, including very high signal-to-noise ratio of more than 80:1 RMS, low power consumption (less that 1.3 mA low-power state current), best-in-class water rejection and wet-finger tracking, and more. In addition, they provide highly accurate stylus tracking accuracy better than 0.7 mm, along with 120Hz refresh rates for full handwriting recognition.
        - http://www.cypress.com/touch/
    - The touch driver supports the following features:
        - Two finger multi-touch, following the Microsoft multi-touch interface
            - Zoom: Supported in IE6

        - Rotate: Supported in applications, not OS
        - Smooth finger gesture: Supported in applications, not OS
    - One finger touch:
        - Scrolling: Supported by MS standard gesture
        - Selecting: Supported by MS standard gesture
        - Tap: Supported by MS standard gesture
        - Double tap: Supported by MS standard gesture
        - Hold: Supported by MS standard gesture
        - Flick: Supported by MS standard gesture
        - Pan: Supported by MS standard gesture
- Sample Rate: 60 Hz
- Resolution (H x V): 480 x 800 pixel (WVGA)

LCD

- Display: Ortustech "Blanview Technology" TFT-LCD Panel
    - ORTUS COM43H4M64ULC
    - Better contrast (higher contrast ratio), whiteness and outdoor visibility than Transflective & Transmissive Displays
    - Better Power Efficiency (Battery Life) than Transflective & Transmissive Displays
- Portrait Orientation with Diagonal Size: 4.3 inch (10.92 cm)
    - 480 x RGB(H) x 800 (V) dots
    - Rotation support in applications (not OS)
- Colors: 16.7 Million colors (24-bit RGB (8-8-8 Format))
- Signal input method: MIPI (Mobile Industrial Processor Interface) DSI (Display Serial Interface) 2-lanes: 2 data lines and 1 clock lane
- Drive System: a-Si TFT active matrix; line-scanning, non-interlace
- Backlight type: Long Life & High bright white LED
    - 350cd/m2@IL = 10mA
- Color (Dot/pixel) arrangement: RGB (Red dot, Green dot, Blue dot) stripe arrangement
- Display Active Area (H x V): 55.8 x 93.0 mm
- Number of Dots (H x V): 1440 x 800 dots
- Dot Pitch (H x V): 38.75 x 116.25 um
- Hardness of Gorilla Glass: 5.5 Mohs

Photometer

- Avago APDS-9900
- Uses Digital Proximity Sensor to turn off backlight and touch when using cell phone
- Uses Ambient Light Sensor to auto-adjust display brightness / change the LCD backlight
    - IR transmittance > 70%
    - Visible transmittance > 10%

Magnetometer / Compass

- Module: Honeywell HMS5883L
- 3-Axis Magnetoresistive Sensors

- Interface: I2C3
- Integrated electronic compass
    - Horizontal Accuracy (50%) = +/-5 degrees
    - Horizontal Accuracy (95%) = +/-10 degrees
    - Accuracy at 45 degree inclination of device (50%) = +/- 15 degrees
    - No Cardinal/Ordinal direction is to have more than +/-8 degrees (50%) absolute error at horizontal orientation
    - Accuracy is defined as at least 30 data points taken at the each of the Cardinal and Ordinal directions (8 total)
    - Accuracy tests are based on user holding device in their hand at a 45 degree angle to the ground.
    - The absolute error calculations compared to magnetic north from each direction are used as a set to determine accuracy
    - Test must be performed with at least 3 units at latitudes between 45 degrees South and 45 degrees North

Accelerometer

- Module: ADI ADXL346
- The ADXL346 is a small, thin, ultralow power, 3-axis accelerometer with high resolution (13-bit) measurement at up to ±16 g.
- Interface: I2C3

Gyroscope

- Module: InvenSense MPU-3050
    - X-, Y-, Z-Axis angular rate sensors (gyros) on one integrated circuit
    - 6-axis motion processing capability using secondary I2C interface to directly connect to a digital 3-axis third-party accelerometer
    - 10,000g shock tolerant
- Interface: I2C3
- SW can disable this function
- Only support this function in Android version

Vibrator

- part number: EVOWAVE Z3OC1T8219651
- SMT TYPE
- interface: TPS65950 vibrator H-bridge

Operating System Specifications

- Operating Systems available:
    - Windows Embedded Handheld (WEH) 6.5, AKU 5.3.12.11
    - Android 2.3.4 “Gingerbread”

- OS Language Provisioning: Choose from the following languages on first boot: Chinese (Simplified), English, French, German, Italian, Japanese, Korean, Portuguese, Russian, or Spanish
- Supporting Integrated Software Applications:
    - Windows Embedded Handheld:
        - Standard Microsoft Applications:
            - Microsoft Office Mobile 2010 applications:
                - Word Mobile 2010
                - Excel Mobile 2010
                - PowerPoint Mobile 2010
                - Outlook Mobile
                - SharePoint WorkSpace Mobile 2010
                - OneNote Mobile 2010
            - Microsoft ActiveSync/Windows Mobile Device Center (must download the correct version for your PC, the T41 is pre-configured to work with a configured PC)
            - Internet Explorer Mobile 6
            - Microsoft My Phone with SMS Text Messaging
            - Adobe Reader LE 2.5
            - Contacts/Calendar
            - Microsoft Task Manager & Notes
            - Calculator
            - Windows Media Player
            - Windows Live Messenger
            - Remote Desktop Mobile
        - Custom Applications:
            - CellStart – Trimble WWAN Configuration Utility
            - SatViewer – Trimble GPS Interface Utility
            - Camera Control Application
            - Flashlight Application
            - Summit Wi-Fi Configuration Utility
    - Android:
        - Standard Android Applications:
            - E-mail
            - Phone & SMS Messaging
            - Picture & Video Gallery
            - Multimedia Player
            - Web Browser
        - Custom Applications:
            - Trimble Outdoors Navigator
            - Camera Control Application
            - Flashlight Application
            - Summit Wi-Fi Configuration Utility
        - Download other 3rd Party Applications from the Amazon Market

Bluetooth

- Module : Summit SDC-SSD40NBT
- Main chip: Broadcom BCM4329
    - Broadcom BCM4329 integrates a complete IEEE 802.11 a/b/g/n system (MAC/baseband/radio) with Bluetooth® 2.1 + EDR (Enhanced Data Rate), and FM radio receiver and transmitter.
- Bluetooth Standards: Bluetooth Version: 2.1 with Enhanced Data Rate (EDR) via a serial UART (Universal Asynchronous Receiver/Transmitter) interface.
- Supports Bluetooth 2.1 using Frequency Hopping Spread Spectrum (FHSS)
- Power Class: Class 2
- Range: Effective range: 10 m (able to pair and transfer, outdoors line-of-site in optimum conditions)
- Average Throughput: 278 kbits/s @ 5m; 250 kbits/s @ 10 m
- The device supports all Bluetooth data rates and automatically adjusts data rates and operational modes based on various environmental factors
- Interface
    - Bluetooth: UART
    - Bluetooth Audio: PCM
- Microsoft Windows Bluetooth stack
- Module Certifications
    - Bluetooth SIG Qualification
- Antenna
    - Dual antenna diversity
    - WLAN and Bluetooth share the same antenna
- Supported Profiles:
    - GAP - Initiator and Acceptor roles
    - GOEP - Client and Server roles
    - SPP - Initiator and Acceptor roles
    - DUN - Data Terminal (DT) role for all units; Gateway (GW) role for WWAN-enabled units
    - HFP - Audio Gateway (AG) role
    - HSP - Audio Gateway (AG) role
    - HID - Host role
    - OPP - Push Client and Push Server roles
    - PAN - Network Access Point (NAP) role
    - AOB (ActiveSync-Over-Bluetooth)
    - A2DP - Source (SRC) role
    - AVRCP - Target (TG) role
    - PBAP - Phone Book Server Equipment (PSE) role

Wireless LAN / Wi-Fi

- Module : Summit SDC-SSD40NBT
- Main chip: Broadcom BCM4329

    - Broadcom BCM4329 integrates a complete IEEE 802.11 a/b/g/n system (MAC/baseband/radio) with Bluetooth® 2.1 + EDR (Enhanced Data Rate), and FM radio receiver and transmitter.
- Standards: supports IEEE 802.11b/g/n standards
- Module Certifications
    - Wi-Fi Alliance
    - Cisco Compatible Extensions (CCX) Version 4
- Interface: SDIO (Secure Digital Input/Output)
- Function:
    - The radio operates in 2.4 GHz radio frequency spectrum.
    - The device is compliant with 802.11b, 802.11g, and 802.11n standards using Direct Sequence Spread Spectrum (DSSS), Orthogonal Frequency Division Multiplexing (OFDM).
    - The device supports all 802.11b, 802.11g, 802.11n, and Bluetooth data rates and automatically adjusts data rates and operational modes based on various environmental factors.
    - Dual antenna diversity
    - WLAN and Bluetooth share the same antenna

Supported Wi-Fi Security Configurations, Microsoft Supplicant (WEH):

Protocol/Authentication	Encryption Types	EAP Authentication	Inner Authentication	Supported?
Open	None	None		yes
Open	WEP	None		Yes
Open	WEP	PEAP		Yes
Open	WEP	EAP-TLS		Yes
Shared	None	None		No (1)
Shared	WEP	None		yes
Shared	WEP	PEAP		No (2)
Shared	WEP	EAP-TLS		No (2)
WPA	TKIP	Peap		yes
WPA	TKIP	EAP-TLS		Yes
WPA	AES	PEAP		Yes
WPA	AES	EAP-TLS		Yes
WPA-PSK	TKIP	None		Yes
WPA-PSK	AES	None		Yes
WPA2	TKIP	PEAP		Yes
WPA2	TKIP	EAP_TLS		Yes
WPA2	aes	PEAP		Yes
WPA2	AES	EAP-TLS		Yes
WPA2-PSK	TKIP	None		Yes
WPA2-PSK	AES	None		Yes

(1) Operating system does not allow this configuration.

(2) Does not work, but unclear whether it's due to OS or the device driver/hardware. Competitive devices also show this problem.

Supported Wi-Fi Security Configurations, CCX Supplicant:

Protocol/Authentication	Encryption Types	EAP Authentication	Inner Authentication	Supported?
Open	-	-		Yes
Shared	-	-		Yes
WEP 802.1X	WEP	-		Yes
WEP 802.1X	TKIP			No
WEP 802.1X	AES			No
WPA	WEP			No
WPA	TKIP	None		Yes
WPA	TKIP	TLS		Yes
WPA	TKIP	PEAP		Yes
WPA	TKIP	LEAP		Yes
WPA	TKIP	EAP-FAST		Yes
WPA	AES			No
WPA	PSK	-		Yes
WPA2	WEP	-		No
WPA2	TKIP	-		No
WPA2	AES	None		Yes
WPA2	AES	TLS		Yes
WPA2	AES	PEAP		Yes
WPA2	AES	LEAP		Yes
WPA2	AES	EAP-FAST		Yes
WPA2	PSK	None		Yes
CCKM	-	None		Yes

GPS

- Technology: Consumer-grade
- GPS chip: U-Blox Neo 6-Timing Module (ublox NEO-6T)
- Engine: u-blox 6 positioning engine
- Hardware Com Port: COM 2
- Baud Rate: 38400 bps
- Firmware: ROM CORE 7.03
- Receiver Type:

    - 50 Channels
    - GPS L1 frequency, C/A Code
    - Corrections: Real-time via SBAS (WAAS/EGNOS/MSAS)
- Input/Output protocols supported:
    - NMEA: Input/output, ASCII, 0183, 2.3 (compatible to 3.0)
        - GGA, GLL, GSA, GSV, RMC, VTG, TXT, ZDA
    - UBX: Input/output, binary
    - RTCM: Input, 2.3
- Maximum Navigation update rate: 5 Hz
- Raw Data: Raw data output is supported at an update rate of 5 Hz. The raw data stream can be used in external applications that offer precision positioning, real-time kinematics (RTK) and altitude sensing
- Trimble Software Utility – SatViewer (connect to GPS chip and get a fix on satellites)
- External GPS Antenna compatibility: MMCX port for the optional external GPS Antenna
- GPS Accuracy: 2-4 m accuracy with HRMS SBAS correction –open sky[1]
- Time to First Fix:

	Out-of-Box (Cold fix)	Typical (Warm Fix)
Open Sky[1]	≤ 30 sec	≤ 30 sec
Rural Canyon[1]	≤ 45 sec	≤ 30 sec

The following information is from the ublox spec sheet:

- Sensitivity (Demonstrated with a good active antenna):
    - Tracking & Navigation: -162 dBm
    - Reacquisition (For an outage duration 10s): -160 dBm
    - Cold Start (without aiding): -148 dBm
    - Hot Start: -157 dBm
- Horizontal position accuracy (CEP, 50%, 24 hours static, -130dBm, SEP: <3.5m):
    - GPS: 2.5 m
    - SBAS: 2.0 m
- Configurable Timepulse frequency range: 0.25 Hz to 10 MHz
- Accuracy for Timepulse signal:
    - RMS: 30 ns
    - 99%: < 60 ns
    - Granularity: 21 ns
    - Compensated (Quantization error information can be used with NEO-6T to compensate the granularity related error of the timepulse signal): 15 ns
- Velocity accuracy (CEP, 50%, 24 hours static, -130dBm, SEP: <3.5m): 0.1 m/s
- Heading accuracy (CEP, 50%, 24 hours static, -130dBm, SEP: <3.5m): 0.5 degrees
- Operational Limits:
    - Dynamics: </ 4 g
    - Altitude (Assuming Airborne <4g platform): 50,000 m
    - Velocity (Assuming Airborne <4g platform): 500 m/s

Camera: General

- Auto-focus 8 megapixel camera with geo-tagging and dual LED flash
- Module: TRULY CM6719
    - Sensor Type: Aptina A8140
    - Array Size: 3264 x 2448
    - ISP
        - Support sensor pixel counts: 8 Mega Pixels
    - Output Format: JPEG stream (YUV 422, YUV420, Gray Scale)
- The auto-focus accommodates focus on subjects from 20 cm to infinity
- Frame Rate: The viewfinder is capable of 15 frames per second (fps) refresh
- Interface: Custom Camera Application – replaces MS Pictures & Videos application
- Multiple image resolutions – see the chart below for supported resolutions:

Orientation	4:3	5:3
Still Images	1.3MP – 1280x960 3MP – 2048x1536 5MP – 2560x1920 8MP – 3264x2448	WVGA – 800x480 WXGA - 1280x768 2.4MP – 2000x1200 3.9MP – 2560x1536 6MP – 3264x1960
Video	QVGA – 320x240 VGA – 640x480	WVGA – 800x480

Camera: Flash

- 2 Flash LED Design
- Part Number: CITIZEN CL-690S
- High Brightness White LED Light Source
- 60 View Angle
- LED Torch/Camera Light Supply
- Flash Mode control by Camera module
- LED torch mode can be controlled by application through API

Wireless WAN

- 3.75 G cellular Data & Voice
- Module Name: CINTERION PHS8
- SIM Application Toolkit, release 99
- EP11 A-GPS functionality via Control Plane
- HSDPA/HSUPA data rates
    - DL: max 14.4 Mbps, UL: max 5.7 Mbps
- CSD data transmission 14.4 kbps, V.110
- Voice: HR, FR, EFR and AMR

- TTY supported
- SMS Text and Voice capability on GSM networks
- Wi-Fi tethering not supported
- Supported Bands:
    - Penta-Band 3G
    - Quad-Band 2G
    - EDGE Class 12
    - GPRS Class 12
- WWAN Radios:
    - UMTS/HSPA+, 3GPP release 6/7
        - Five Band UMTS (WCDMA/FDD): 850/800, 900, 1900, 2100 MHz, AWS
    - GSM/GPRS/EDGE, 3GPP release 99/4
        - Quad-Band GSM: 850, 900, 1800, 1900 MHz

SKU Matrix

Model	Part Number	Color/IP Rating	O.S.	CPU	RAM/Flash	Compass / Accelerometer	BT & Wi-Fi	2-4 m GPS	8 MP Camera	3.75 G Phone/WWAN
M (non-wireless military)	T41MLN-TGW-00	IP68	WEHH	800 MHz	256 MB / 8 GB	x		x		
	T41MLN-TGA-00		ANDROID							
C (basic)	T41CLN-TYW-00	IP65	WEHH	800 MHz	256 MB / 8 GB	x	x	x	x	
	T41CLN-TYA-00		ANDROID							
	T41CLN-TGW-00	IP68	WEHH							
	T41CLN-TGA-00		ANDROID							
X (WWAN)	T41XLN-TYW-00	IP65	WEHH	1.0 GHz	512 MB / 16 GB	x	x	x	x	x
	T41XLN-TYA-00		ANDROID							
	T41XLN-TGW-00	IP68	WEHH							
	T41XLN-TGA-00		ANDROID							

Accessories in the Box

- Wrist Strap with Stylus Pocket
- Ultra Clear Screen Protectors (2)
- Custom T41 USB Cable for syncing to a PC and Charging Battery
- Microfiber Display Cleaning cloth
- International AC Charging kit with 4 international plug adapters

- Quick Start Guide (with URL for online user manual)
- Accessory List
- SD/SIM card access tool

Environmental Specifications

- Fully Rugged Design tested to Military Standards – MIL-STD-810G and IP65 (Black with Yellow) or IP68 (Black with Gray)
- **Water:**
    - IP68 (Black with Grey version): Survives immersion at 3.3 ft (1 m) for two hours, IEC-60529 IP-X8
    - IP65 (Black with Yellow version): Survives driving rain and water spray, IEC-60529 IP-X5; Water Jet 12.5mm dia @ 2.5-3m
- **Dust:** Protected against dust, IEC-60529, IP6x, dust chamber with under-pressure
- **Drops:** Survives multiple drops of 4 ft. (1.22m),
    - MIL-STD-810G,
        - Method 516.6, Procedure IV, Transit Drop
- **Operating Temperature:** -22 ºF to 140 ºF (-30 °C to 60 °C),
    - MIL-STD-810G,
        - Method 502.5, Procedure I, II, III (Low Temp Operating -30 °C);
        - Method 501.5, Procedure I & II (High Temp Operating 60 °C)
- **Storage Temperature:** -40 ºF to 158 ºF (-40 °C to 70 °C),
    - MIL-STD-810G,
        - Method 502.5, Procedure I, II, III (Low Temp Storage -40 °C)
        - Method 501.5, Procedure I & II (High Temp Storage 70 °C)
- **Temperature Shock:** Cycles between -22 ºF and 140 ºF (-30 °C and °60 C),
    - MIL-STD-810G,
        - Method 503.5, Procedure I-C
- **Humidity:** 90% relative humidity with temperatures between 22 ºF and 140 ºF (30 C and 60 C),
    - MIL-STD- 810G,
        - Method 507.5, Procedure II
- **Altitude:** 15,000 ft (4,572 m) at 73 °F (23 °C) to 40,000 ft (12,192 m) at -22 °F (-30 °C),
    - MIL-STD-810G,
        - Method 500.5, Procedure I, II & III
- **Vibration:** General minimum integrity and loose cargo tests,
    - MIL-STD-810G,
        - Method 514.6, Procedure I & II, Category 5

- **Solar Exposure:** Survives prolonged UVB exposure,
    - MIL-STD- 810G,
        - Method 505.5, Procedure II
- **Chemical Exposure:** Resistant to mild alkaline and acid cleaning solutions, fuel hydrocarbons, alcohols and common vehicle and factory machine lubricants at -40 °C);

Certifications

- FCC (North America)
- IC (Canada)
- CE Marking (Europe)
- R&TTE (Europe)
- C-Tick (Australia / New Zealand)
- GCF compliant (Europe)
- RoHS compliant
- Section 508 compliant
- PTCRB (North America)
- SAR
- AT&T network compatible (Data & Voice)
- Wi-Fi Alliance certified
- CCX
- USB 2.0 Full Speed
- MIL-STD-810G
- IP65/IP68
- MIL-STD-461E
- Windows Embedded LTK
- Android Logo Requirements
- Meets Android Compatibility Definition Document (CDD) requirements, and must pass current Compatibility Test Suite (CTS)
- Foreign regulatory as required

Other Resources:

- www.trimble.com/JunoT41
    - DataSheet, Customer FAQs, MCS Product Comparison, Configurations
- www.trimble.com/JunoT41/Support
    - Downloads
    - Documentation
    - Troubleshooting Guide
- http://mcspartners.trimble.com/
    - Regulatory Documents, CAD Drawings
- Trimble Outdoor Rugged Computer Store

Specifications subject to change without notice

Footnotes

1. Horizontal Root Mean Squared accuracy. Requires data to be collected using default GPS settings in an open sky, with minimal multipath conditions, Ionospheric and tropospheric conditions, multipath signals or obstruction of the sky by buildings or heavy tree canopy may degrade precision. SBAS yield is reduced for northern latitudes as compared areas nearer the equator. Rural canyon testing performed in forested location with canyon walls at 20-30 degrees.